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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,781	09/19/2005	Tai-Tung Yip	035394-0265	8494

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EXAMINER	
ARCHIE, NINA	

ART UNIT	PAPER NUMBER
1645	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/508,781	YIP ET AL.	
	Examiner	Art Unit	
	Nina A. Archie	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *8-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :9/23/2004, 5/30/2005, 3/13/2006.

DETAILED ACTION

Priority

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Drawings

2. The drawings in this application have been accepted. No further action by Applicant is required.

Specification

3. The use of the trademark Protein Chip®has been noted in this application (see for example pg. 8 last paragraph). It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Information Disclosure Statement

4. The information disclosure statement filed on 9/23/2004, 5/3/2005, and 3/13/2006 has been considered. Initialed copies are enclosed.

Election/Restrictions

5. Applicant's election with traverse of Group I claims 1-7 is acknowledged. The traversal is on the ground(s) that Examiner has rationalized the restriction of Group 1 claims from those of Group II ("kit" claims 8-10) and Group III ("software" claims 11-14) by asserting that the special technical feature common to all three groups "is anticipated by Yang et al US Patent No. 5,702,907" (action at page 2, numbered paragraph 4). More specifically, the examiner defines the "technical feature of Group I" as "a method

for qualifying hepatocellular carcinoma status in a subject," which, according to the examiner, the Yang patent teaches in terms of "analyzing a biological sample ... for a diagnostic level of a protein" (id.). Applicant submits, however, that the examiner has erred in her characterization of the special technical feature, by virtue of which the three groups are actually aspects of the same invention, pursuant to PCT Rules 13.1 and 13.2. On this point, the specification expressly states that: It would be highly desirable to have a biomarker or combination of biomarkers capable not only of identifying HCC but also of distinguishing it from chronic liver disease (CLD), among other conditions. The literature of HCC diagnosis has not disclosed heretofore such a biomarker or combination of biomarkers.

The traversal is also on the grounds that Examiner also errs by requiring that applicant "choose a single protein" even while admonishing that her examination, thus constrained, "should not be construed as a species election." In addition to being flawed procedurally, this de facto restriction contravenes current PTO policy in relation to the process claims of Group I and their equivalent, the software (algorithm) claims of Group III, as well as to the combination ("kit") claims of Group II. Thus, "when the Markush group occurs in a claim reciting a process or a combination (not a single compound), it is sufficient [for joinder] if the members of the group are disclosed in the specification to possess at least one property in common which is mainly responsible for their function in the claimed relationship, and it is clear from their very nature or from the prior art that all of them possess this property." MPEP § 2173.05(h) (emphasis added).

From the preceding discussion, it is apparent that the Markush group at issue, occurring in claims that recite a process, an algorithm or a combination, is populated by biomarker members that have a common property, which is mainly responsible for their diagnostic function in the claimed invention. Accordingly, a preclusive restriction of the claimed invention to "a single protein" violates the MPEP and should be withdrawn.

In summary, applicant requests that examination together of the three claim sets, without restriction to biomarker. Further, since the prior art on HCC diagnosis indeed suggests no biomarker or combination of biomarkers capable of distinguishing HCC

from CLD, applicant submits that the present claims are patentable, and an early indication to this effect is requested.

These arguments as set forth supra are not found persuasive. The specification does not disclose any structural limitation to the proteins claimed. Therefore Examiner interprets the method for qualifying hepatocellular carcinoma status in a subject comprised of analyzing a biological sample from said subject for a diagnostic level of any protein. Also the proteins are structurally different therefore each protein is a separate invention (see MPEP 803.04).

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-7 in part (proteins disclosed in claim 1 except I-M38) and claims 8-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group 1 in part (proteins disclosed in claim 1 except I-M38), Group II claims 8-10, and claims 11-14, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement on 11/30/2007 .

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

Claim 1 independent claim and all dependent claims 2-7 are drawn to a method for qualifying hepatocellular carcinoma in a subject comprised of analyzing a biological sample from said subject for a diagnostic level of a protein. The specification discloses that Figures 1-2 disclose a molecular weight of I-M38. The specification does not teach any structural limitations of I-M38. Therefore, the specification lacks written description of the claimed method for qualifying hepatocellular carcinoma in a subject comprised of analyzing a biological sample from said subject for a diagnostic level of a protein. This issue is best resolved by Applicants pointing to the specification by page and line number where description of the claimed invention is set forth.

MPEP § 2163.02 states, "an objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed". The courts have decided: The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. See Vas-Cath, Inc.'v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993)and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, paragraph 1, "'Written Description" Requirement (66 FR 1099-1111, January 5,2001) state, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by

disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (Id. at 1104).

The Guidelines further state, "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one species within the genus" (Id. at 1106); accordingly, it follows that an adequate written description of a genus cannot be achieved in the absence of a disclosure of at least one species within the genus. Bowie et al (Science, 1990, 247:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function, carry out the instructions of the genome and form immunoepitopes. Bowie et al. further teach that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. (column 1, page 1306). Bowie et al further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (column 2, page 1306). Therefore, absent a detailed and particular description of a representative number, or at least a substantial number of the members of the genus of proteins, the skilled artisan could not immediately recognize or distinguish members of the claimed genus of proteins. Therefore, in accordance with the Guidelines, the description of proteins is not deemed representative of the genus proteins of I-M38 of the claim invention thus the claim does not meet the written description requirement.

Status of the Claims

7. No claims are allowed.

Claims 1-7 are rejected.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nina A. Archie whose telephone number is 571-272-0898. The examiner can normally be reached on Monday-Friday 8:30-5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nina A Archie

Examiner

GAU 1645

REM 3B31

MARK NAVARRO
PRIMARY EXAMINER